UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,292	10/14/2003	Giuseppe Calarco	854063.736	9819

38106 7590 05/06/2008
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVENUE, SUITE 5400
SEATTLE, WA 98104-7092

EXAMINER	
LIANG, REGINA	
ART UNIT	**PAPER NUMBER**
2629	
MAIL DATE	**DELIVERY MODE**
05/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/685,292	**Applicant(s)** CALARCO ET AL.	
	Examiner Regina Liang	**Art Unit** 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 10-14, 16-18, 20, 22, 30-39, 41-45, 48, 50-58, 63-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 10-14, 16-18, 20, 22, 30-39, 41-45, 48, 50-58, 63-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to amendment filed 2/14/08. Claims 1-8 10-14, 16-18, 20, 22, 30-39, 41-45, 48, 50-58, 63-65 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1, 2, 8, 12-14, 16-18, 20, 22, 30-34, 36-39, 41, 54-58, 63-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett (US 6,573,883) in view of Lee et al ("Two-Dimensional Position Detection System with MEMS Accelerometer for MOUSE Applications", hereinafter Lee).

As to claim 1, Fig. 5 of Bartlett discloses a user controlled device (handheld computing device 700), comprising a body, that is movable in a plurality of positions of a 3-D space; a motion sensor (740 in Fig. 5, col. 6, lines 21-26) coupled to the body and configured to detect movements of the body in a first and second directions; a microcontroller (inherent including a microcontroller in the computing device) coupled to the sensor and configured to generate first control signals (position command signals) correlated to the positions, only while detected movements of the body are less than a speed of movement threshold (no gesture command is detected; note that the gesture command as shown in Figs. 2a-2d correspond to a speed threshold, e.g., in Fig. 2a, the quick movement of the handheld has to be greater than the angular orientation about an axis of rotation during the time interval between T_f-T_s, an activation signal is detected, otherwise, the activation signal is not detected, thus, the angular orientation about an axis of rotation during the time interval reads on a speed of movement threshold or speed threshold as claimed) and greater than a amplitude of movement threshold (θ>θ1, see col. 5, lines 35-47).

Bartlett does not disclose the motion sensor comprising a MEMS acceleration sensor. However, Lee teaches a position detection system with MEMS accelerometer, Fig. 1 of Lee also teaches a microcontroller coupled to the MEMS sensor and configured to generate control signals correlated to the positions (page 852). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Bartlett to utilize a MEMS acceleration sensor to detect movements of the body in a first and second directions since Lee teaches the MEMS accelerometer “gives high sensitivity with low temperature drift” and “the device dimensions optimize large sensitivity over layout area” (page 852, lines 2-4 in [2.2]).

As to claim 2, Bartlett teaches the body of the handheld device is in a form of PDA. Lee teaches the body of the input device is in a form of mouse. And it is well kwon in the art that user input device comprising a joystick, a game pad. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user input device of Bartlett as modified by Lee to be in a form selected between computer mouse, joystick, gamepad, and PDA so a to input commands and information into a computer since such forms are well known and familiar to the user. Furthermore, a change in shape of the input device would have been obvious to one having ordinary skill in the art at the time the invention was made, since a mere change in shape or from involves only routine skill in the art. *In re Dailey*, 149 USPQ 47 (CCPA 1976).

As to claim 8, Lee teaches the MEMS acceleration sensor comprises at least a two-axis accelerometer or two one-axis accelerometers (page 852, 2nd paragraph in INTRODUCTION).

As to claims 12, 33, 34, Bartlett teaches the first control signals comprising a control signal for displacing a screen pointer along a first direction upon detection of movement of the device in the first direction and a control signal for displacing the screen pointer along a second direction upon detection of movement of the device in the second direction (see Fig. 4a, the highlighted selection band corresponds to the screen pointer, move the selection band to the top or to the bottom corresponding to displacing the screen pointer along a first direction or second direction as claimed).

As to claim 13, Bartlett discloses generating second control signals upon detecting movements of the device that are greater than the speed of movement threshold (Fig. 2a, the angular orientation about an axis of rotation during the time interval is reached, and one of gesture command is detected).

As to claims 14, 22, 39, Bartlett teaches that a gesture command (e.g. Figs. 2a-2d) is used to perform a selection function and that the gesture command can be in the same direction as the position command (e.g. col. 4 lines 40-41, "Gesture commands can correspond to a pattern of movement relative to one of the three orthogonal axes") and it is old and well known in the art for input devices (e.g. mouse) to provide cursor movement and mouse click command (selection function) by the user (e.g. Bartlett col. 1 lines 39-43). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the second control signals in Bartlett as modified by Lee to comprise mouse click function command to allow the user to provide simple cursor movement command and mouse click function command (selection command) to provide for "completely finger-free data input" for an electronic device (Bartlett col. 2 lines 19-22). It would have been further obvious to include the claimed mouse click mouse functions since it is an obvious substitution of one type of mouse click function for another.

As to claim 30, note the discussion of claim 1 above. Furthermore, the highlighted selection band as shown in Figs. 4a and 4b of Bartlett corresponds to a pointer on a computer screen.

As to claim 31, Bartlett discloses ignoring movement signals that do not exceed an amplitude threshold ($\theta<\theta1$).

As to claims 32, 38, Bartlett discloses producing activation signals corresponding to movement of the body that exceeds the speed threshold (the angular orientation about an axis of rotation during the time interval is reached, and one of gesture command is detected as shown in Fig. 2a).

As to claim 36, note the discussion of claims 1 and 30 above. Furthermore, it is inherent that the system of Bartlett as modified by Lee having a CPU coupled to the computer screen for controlling the information in the computer screen.

As to claim 37, Lee teaches the MEMS sensor is configured to produce positions signals corresponding to movement of the pointing device around first and second mutually perpendicular axes (X and Y axis).

As to claim 41, Bartlett teaches to control the speed of movement of the pointer (the rate of scrolling increasing when $\theta>\theta2$).

As to claim 16, note the rejection of claims 1, 13 above, furthermore the display screen in Bartlett corresponds to the claimed electrical appliance.

As to claims 17, Lee teaches the MEMS sensor is configured to detect movement of the body along or around first and second axes.

As to claims 18, 20, Bartlett teaches generating position signals corresponding to movements of device along first and second directions.

As to claims 54-56, Lee teaches the MEMS sensor is configured to detect movements of the device in a first, second and third directions (page 857, last paragraph in CONCLUSION).

As to claims 57, 58, Fig. 5 of Bartlett teaches the rotation of the body in X (751) and Y (752) and having threshold, thus Bartlett teaches the threshold comprising X axis threshold and Y axis threshold as claimed.

As to claims 63, in addition to the remarks as applied to claim 1, Figs. 2a of Bartlett also discloses determining a rate of change position (changing the angular orientation about an axis of rotation during the time interval).

As to claim 64, Bartlett teaches producing scrolling when $\theta>\theta1$ (amplitude of change exceeds the amplitude threshold $\theta1$).

As to claim 65, the highlighted selection band as shown in Figs. 4a and 4b of Bartlett corresponds to a screen pointer, Bartlett also teaches the rate of scrolling increasing when $\theta>\theta2$.

4. Claims 3, 4, 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett and Lee as applied to claim1 above, and further in view of Svancarek (US 6,249,274).

As to claims 10, 11, Bartlett further teaches that the control device and the display screen and can separate from each other (e.g. Fig. 7, col. 8 lines 22-27), however Bartlett as modified by Lee does not explicitly disclose the user controlled device having transmission means for connecting the microcontroller to an electrical appliance. Svancarek is cited to teach a user controlled device similar to Bartlett and Lee. Fig. 2 of Svancarek teaches a user controlled device (100) for controlling the computer and microprocessor-based or programmable consumer electronics (electrical appliance) having transmission means (118) for connecting the microcontroller (102) to an electrical appliance (col. 2, lines 25-45), wherein the transmission means comprising a wire or wireless transmission (col. 4, lines 30-31). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user input device of Bartlett as modified by Lee to have the transmission means as taught by Svancarek in order to transmit information from microcontroller to computer or electronic device when the display screen is separate from the control device.

As to claim 3, Svancarek teaches the user controlled device comprise support means (134, 136) such that the device is titable around two axes by the user. Thus, it would have been obvious to modify the body of Bartlett as modified by Lee to have support means as claimed for better rotation control.

As to claim 4, Bartlett as modified by Lee and Svancarek does not disclose the body is supported by rounded base, at least one spring, yieldable balls or elastically supported balls. However, it would have been an obvious matter of design choice to modify the body of the user controlled device of Bartlett as modified by Lee and Svancarek to have the limitation as claimed, since such a modification would have involved a mere change in the shape of a components.

Furthermore, a change in shape of the input device would have been obvious to one having ordinary skill in the art at the time the invention was made, since a mere change in shape or from involves only routine skill in the art. *In re Dailey*, 149 USPQ 47 (CCPA 1976).

5. Claims 5, 6, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett and Lee as applied to claims 1 and 30 above, and further in view of Kuga (US 5,701,131).

As to claims 5, 6 and 35, Bartlett as modified by Lee teaches the body is a housing accommodating the MEMs acceleration sensor. Bartlett as modified by Lee does not teach the body is fixed to an article to be worn by a user. However, Figs. 1 and 2 of Kugo teach a user controlled device is fixed to a goggle (4) to be worn by a user. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user controlled device of Bartlett as modified by Lee to be fixed to a article and mounted to user's head as taught by Kuga so as to provide a hand free input control device.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett, Lee and Kuga as applied to claim 6 above, and further in view of Davison (US 4,682,159).

Kuga teaches the article is an eyeglasses. Bartlett as modified by Lee and Kuga does not explicitly disclose the article is a hairband. However, Davison teaches a pointing device is mounted in a hairband. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user input device of Bartlett as modified by Lee and Kuga to be mounted to hairband as taught by Davision so as to provide a hand free input control device.

7. Claims 42-45, 48, 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett in view of Odamura (US 6,765,553).

As to claim 42, Fig. 5 of Bartlett discloses a user controlled device comprising: a body, a sensor (740 Fig. 5) coupled to the body and configured to produce a first signal corresponding to rotation of the body around a first axis (pitch 752), and a circuit configured to produce a movement command (the selection band movement command in the stepwise rate as shown in Figs. 4a and 4b corresponds to the movement command) in a first direction (vertical direction), corresponding to a value of the first signal, when the first signal indicates rotation of the body that is lower than a speed threshold, and to produce a first function command when the first signal indicated rotation of the body that exceeds the speed threshold (note that the gesture command as shown in Figs. 2a-2d correspond to a speed threshold, e.g., in Fig. 2a, the quick movement of the handheld has to be greater than the angular orientation about an axis of rotation during the time interval between T_f-T_s, an activation signal is detected, otherwise, the activation signal is not detected, thus, the angular orientation about an axis of rotation during the time interval reads on a speed of movement threshold or speed threshold as claimed).

Bartlett differs from claim 42 in that the movement command is not a cursor movement command. Odamura is cited to teach a user controlled device similar to Bartlett. Odamura teaches the same movement command can be used to control either a cursor movement command for controlling cursor movement (S24-S26 in Fig. 5, S35-S36 in Fig. 8B) or a scroll movement command for scrolling of display data. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify movement command of

Bartlett to be a cursor movement command since Odamura teaches the operation of the scrolling data and cursor movement in the user controlled device are equivalent each other and can be controlled by the same position command to simplify operation by the user.

As to claim 43, Bartlett differs from the claimed invention in not disclosing the first function command is a mouse click command. However, Bartlett teaches that a gesture command (e.g. Figs. 2a-2d) is used to perform a selection function and that the gesture command can be in the same direction as the position command (e.g. col. 4 lines 40-41, "Gesture commands can correspond to a pattern of movement relative to one of the three orthogonal axes") and it is old and well known in the art for input devices (e.g. mouse) to provide cursor movement and mouse click command (selection function) by the user (e.g. Bartlett col. 1 lines 39-43). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first function command in Bartlett as modified by Odamura to comprise a mouse click function command to allow the user to provide simple cursor movement command and mouse click function command (selection command) to provide for "completely finger-free data input" for an electronic device (Bartlett col. 2 lines 19-22).

As to claim 44, Bartlett discloses the circuit is configured to produce the first function command when the first signal indicates rotation of the body in a first direction exceeding the speed threshold, and to produce a second function command when the first signal indicates rotation of the body in a second direction exceeding the speed threshold (the angular orientation about an axis of rotation during the time interval is reached, and one of gesture command is detected as shown in Fig. 2a).

As to claim 45, note the discussion of claim 43 above. Bartlett as modified by Odamura does not disclose the first function command is a left click command and the second function command is a right click command. However, it is old and well known in the art that a mouse click command comprising a left click command and a right click command. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user controlled device Bartlett as modified by Odamura to have a left click command and a right click command so as to provide a conventional mouse clicking functions.

As to claim 48, Bartlett teaches the circuit is configured to produce the movement command only when the first signal indicated rotation of the body exceeding an amplitude threshold (the selection band movement only when the angular orientation θ>θ1, see col. 5, lines 42-44).

As to claim 50, Bartlett teaches the thresholds are any preferred value (col. 3, line 63 to col. 4, lines 5), this reads on the speed and amplitude threshold are selectable by user of the device.

As to claim 51, Bartlett teaches the sensor is configured to produce a second signal corresponding to rotation of the body around a second axis (roll 751) perpendicular to the first axis (pitch 752), and the circuit is further configured to produce a second function command when the second signal indicates rotation of the body around the second axis exceeding a respective speed threshold (the angular orientation about an axis of rotation during the time interval is reached, and one of gesture command is detected as shown in Fig. 2a).

As to claim 52, Bartlett teaches it is well known in the art that a user control device can produce a third signal corresponding to movement of the body along a third axis perpendicular to the first and second axes, and configured to produce a third command when the third signal indicates movement of the body (col. 2, lines 1-7). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Bartlett as modified by Odamura to produce the third signal as claimed to optimize the handheld device.

8. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett and Odamura as applied to claim 42 above, and further in view of Lee.

Bartlett as modified by Odamura does not disclose the sensor is MEM type sensor. However, Lee teaches a position detection system with MEMS accelerometer. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sensor of Bartlett as modified by Odamura to utilize a MEMS acceleration sensor as taught by Lee since the MEMS accelerometer which "gives high sensitivity with low temperature drift" and "the device dimensions optimize large sensitivity over layer area" (see Lee, page 852, lines 2-4 in [2.2]).

Response to Arguments

9. Applicant's arguments filed 2/14/08 have been fully considered but they are not persuasive.

Applicant's remarks regarding Bartlett on pages 21-23 are not persuasive. Applicant's remarks regarding "Bartlett's position command is not generated only if the speed of movement is below a threshold, but are instead generated without consideration of the speed of movement" (page 22, lines 2-3 of the remarks) are not persuasive. As clearly stated in the rejections above, Bartlett's device generates the position command signal only when no gesture command is detected and when the tilt amplitude of movement is greater than θ1 (see col. 5, lines 42-44), which reads on "a microcontroller …configured to generate first control signals correlated to said positions, only while detected movements of said body are lea than a speed of movement threshold and greater than an amplitude of movement threshold" as claimed in claim 1. Bartlett teaches if any of gesture commands are detected (Figs. 2a-2d), the device of Bartlett would generate an activation signal to activate a gesture commands, otherwise, no gesture command is generated, therefore, Bartlett does consider the speed of movement.

Applicant's argument in that "Bartlett does not require that the movement be greater than some value to be seen as a gesture command, but instead requires that the movement be equal to the value, making allowance for minor variations" (page 22, lines 14-17 of the remarks) are not persuasive. Note that Bartlett's teachings is to detect a click function (gesture command – speed of movement threshold) within a position command (scrolling) for activation of a particular selection as in Fig. 4; therefore Figs. 1 and 2a-2d must be viewed together as one. As shown in Fig. 1, a scrolling (position) command is in progress, and in order to detect a click (gesture) command within the scrolling command, an increase in speed of the angular orientation must be detected in the manner as shown in Figs. 2a-2d. As shown in Figs. 2a-2d, the angular orientation of the movement of the device has to be greater than a certain angle (angular orientation as shown in Fig. 1) within a time frame to generate a gesture command. Therefore, Bartlett does require the movement be greater than some value to generate a gesture command and when there is no gesture command the movement of the handheld device is a level which is less than a speed of movement threshold [click command] needed to indicate a position command as claimed.

Applicant’s argument in that “claim 1 is not directed to detection of a gesture (or click) command, so whether Bartlett detects a gesture command is not relevant" (page 22, lines 18-19 of the remarks) are not persuasive. Since the claim requires generating position control signal when the detected movement of the body are less than a speed of movement, and Bartlett teaches generating the position command signal when not detecting a gesture command (in another words, the detected movement of the body are less than a speed of movement), therefore, Bartlett does not teaches away from generating first control signal only while detected movement are less than a speed of movement, as recited in claim 1. In Bartlett in order to differentiate between a position command and a gesture (click) command during scrolling, an increase in speed of movement must be detected to indicate a gesture command otherwise the handheld device remains in a position command, therefore contrary to applicant's remarks the detection of a gesture command is relevant. Furthermore, applicant's claim 13 is a gesture command in the same manner as Bartlett and as such the detection of a gesture command is clearly relevant.

Applicant’s remarks regarding claims 16, 30, 36, 42, 63 on pages 23-24 are not persuasive, see the rejections and remarks above.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Regina Liang/
Primary Examiner, Art Unit 2629